

## CLAIMS

1. A fullerene derivative having 1 to 4 nitrogen-containing hydrophilic side chain(s) or a salt thereof for use for DNA compaction.
2. The fullerene derivative or a salt thereof for use for DNA compaction as claimed in Claim 1, wherein the nitrogen-containing hydrophilic side chain is "a hydrocarbon group which has 1 or 2 straight-chain or branched-chain substituent group(s) each comprising 1 to 10 nitrogen atom(s) and 2 to 30 carbon atoms, and is configured to be bonded to 1 or 2 of the 2 to 8  $sp^3$  carbon atoms present on the fullerene core" (provided, however, that there may exist a cross-linking moiety comprising an alkylene group bridging two or more nitrogen-containing hydrophilic side chains).
3. The fullerene derivative or a salt thereof for use for DNA compaction as claimed in Claim 2, which has one or two nitrogen-containing hydrophilic side chains.
4. The fullerene derivative or a salt thereof for use for DNA compaction as claimed in Claim 3, wherein the nitrogen-containing hydrophilic side chain is "a

004777" ST 522950

hydrocarbon group which has 1 or 2 straight-chain or branched-chain substituent group(s) each comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms, and is configured to be bonded to two of the 2 to 8  $sp^3$  carbon atoms present on the fullerene core" (provided, however, that there may exist a cross-linking moiety comprising an alkylene group bridging two nitrogen-containing hydrophilic side chains).

5. Use of a fullerene derivative having 1 to 4 nitrogen-containing hydrophilic side chain(s) or a salt thereof for DNA compaction.

6. Use of the fullerene derivative or a salt thereof for DNA compaction as claimed in Claim 5, wherein the nitrogen-containing hydrophilic side chain is "a hydrocarbon group which has 1 or 2 straight-chain or branched-chain substituent group(s) each comprising 1 to 10 nitrogen atom(s) and 2 to 30 carbon atoms, and is configured to be bonded to 1 or 2 of the 2 to 8  $sp^3$  carbon atoms present on the fullerene core" (provided, however, that there may exist a cross-linking moiety comprising an alkylene group bridging two or more nitrogen-containing hydrophilic side chains).

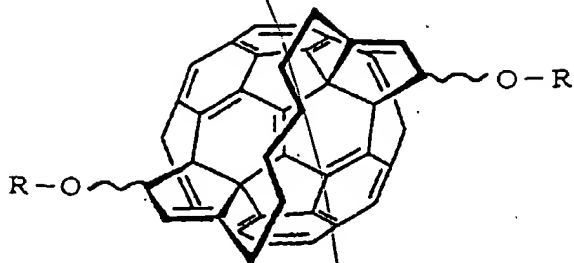
09522915-111700

8. Use of the fullerene derivative or a salt thereof for DNA compaction as claimed in Claim 7, wherein the nitrogen-containing hydrophilic side chain is a "a hydrocarbon group which has 1 or 2 straight-chain or branched-chain substituent group(s) each comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms, and is configured to be bonded to two of the 2 to 8  $sp^3$  carbon atoms present on the fullerene core" (provided, however, that there may exist a cross-linking moiety comprising an alkylene group bridging two nitrogen-containing hydrophilic side chains).

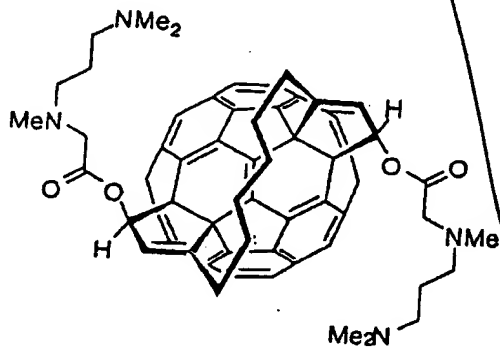
9. A DNA compaction as formed by using a fullerene derivative having 1 to 4 nitrogen-containing hydrophilic side chain(s) or a salt thereof.

10. A DNA compaction as claimed in Claim 9, wherein the ratio of the number of molecules of the fullerene derivative or a salt thereof to the number of base pairs of the DNA is 4:1 to 1:2.

11. A fullerene derivative of the following general formula or a salt thereof:



[wherein the two Rs may be the same or different and each represents a straight-chain or branched-chain acyl group comprising 1 to 10 nitrogen atom(s) and 2 to 30 carbon atoms or hydrogen (provided, however, that the two Rs do not concurrently represent hydrogen)];  
exclusive of the fullerene derivative of the following formula:



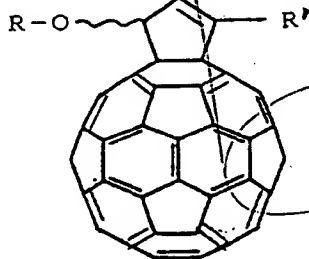
12. A fullerene derivative or a salt thereof as claimed in Claim 11, wherein the two Rs are the same or different and each represents a straight-chain or branched-chain acyl group comprising 2 to 8 nitrogen

00477" ST622960

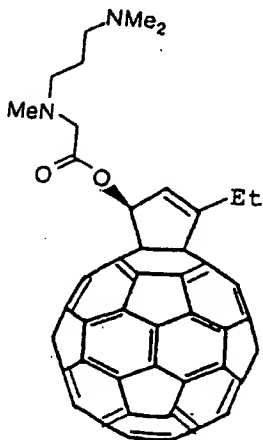
atoms and 2 to 20 carbon atoms.

13. A fullerene derivative or a salt thereof as claimed in Claim 12, wherein the two Rs are the same or different and each represents a [N-(N,N-di(lower)alkylamino)(lower)alkyl-N-(lower)alkyl]amino(lower)alkanoyl group.

14. A fullerene derivative of the following general formula or a salt thereof:



[wherein R represents a straight-chain or branched-chain acyl group comprising 1 to 10 nitrogen atom(s) and 2 to 30 carbon atoms and R' represents hydrogen or a lower alkyl group]; exclusive of the fullerene derivative of the following formula:



09522945-11700

15. A fullerene derivative or a salt thereof as claimed in Claim 14, wherein R represents a straight-chain or branched-chain acyl group comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms.

16. A fullerene derivative or a salt thereof as claimed in Claim 15, wherein R is an [N-(N,N-di(lower)alkylamino)(lower)alkyl-N-(lower)alkyl]amino(lower)alkanoyl group.

17. A DNA compaction reagent comprising a fullerene derivative having 1 to 4 nitrogen-containing hydrophilic side chain(s) or a salt thereof.

18. A DNA compaction reagent comprising a fullerene derivative or a salt thereof as claimed in Claim 17, wherein the nitrogen-containing hydrophilic side chain is "a hydrocarbon group which has 1 or 2 straight-chain or branched-chain substituent group(s) each comprising 1 to 10 nitrogen atom(s) and 2 to 30 carbon atoms, and is configured to be bonded to 1 or 2 of the 2 to 8  $sp^3$  carbon atoms present on the fullerene core" (provided, however, that there may exist a cross-linking moiety comprising an alkylene group bridging two or more nitrogen-containing hydrophilic side chains).

09522945-44700

19. A DNA compaction reagent comprising a fullerene derivative or a salt thereof as claimed in Claim 18, which has 1 or 2 nitrogen-containing hydrophilic side chain(s).

20. A DNA compaction reagent comprising a fullerene derivative or a salt thereof as claimed in Claim 19 wherein the nitrogen-containing hydrophilic side chain is "a hydrocarbon group which has 1 or 2 straight-chain or branched-chain substituent group(s) each comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms, and is configured to be bonded to two of the 2 to 8  $sp^3$  carbon atoms present on the fullerene core" (provided, however, that there may exist a cross-linking moiety comprising an alkylene group bridging two nitrogen-containing hydrophilic side chains).

21. Use of a fullerene derivative having 1 to 4 nitrogen-containing hydrophilic side chain(s) or a salt thereof for the manufacture of a DNA compaction reagent.

add A<sup>1</sup>  
ADD B<sup>1</sup>